

REMARKS/ARGUMENTS

Claim 14 has been amended in a non-limiting manner pursuant to the Examiner's suggestion.

Claims 1-28 are currently pending.

The Office Action rejected claim 14 under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants respectfully submit that this rejection has been rendered moot in view of the above amendment to claim 14, and that the rejection should be reconsidered and withdrawn.

The Office Action also rejected claims 1-28 under 35 U.S.C. § 103 as obvious over U.S. patent application publication no. 2003/0162997 ("Uhara"). In view of the following comments, Applicants respectfully request reconsideration and withdrawal of this rejection.

The pending claims are directed to methods of preserving a phosphorus-molybdenum-vanadium catalyst comprising maintaining the catalyst in a reactor under a condition of a water content of 30 mg or less per 1 g of catalyst dry weight. The benefits and significantly improved properties associated with the claimed methods are more than amply demonstrated by the examples in the present application.

More specifically, the invention examples in the present application are run under conditions which satisfy the required water content, whereas the comparative examples are not. The catalysts in these invention examples have significantly improved methacrylic acid production properties, specifically significantly improved (1) reaction ratios of methacrolein, (2) selectivity of methacrylic acid, and (3) yield of methacrylic acid, as compared to the catalysts in the comparative examples. (See, Tables 1 and 2 in the present application). Thus, the examples in the present application demonstrate that the claimed methods of preserving catalysts, requiring specific water content conditions, result in significantly improved properties as compared to similar methods which do not satisfy the required water content.

Uhara neither teaches nor suggests the invention methods. For example, Uhara neither teaches nor suggests the required water content, nor the substantially improved properties resulting from preserving catalysts under the required water content. Rather, Uhara discloses/exemplifies using water content levels similar to those of the comparative examples in the present application, and thus discloses achieving results similar to those of the comparative examples. This link between Uhara's disclosure and the comparative examples in the present application can be seen at least by examining the selectivity of methacrylic acid figures obtained by Uhara. Uhara discloses selectivity of methacrylic acid figures of at most 82%, and are similar to those of the comparative examples in the present application.

In stark contrast, the selectivity figures associated with the invention methods are significantly higher. (See, Tables 1 and 2). Clearly, Uhara does not teach or suggest using the required content levels in catalyst preservation methods, or any of the significantly improved properties resulting from such methods.

The object of the Uhara's invention is to provide a method for producing methacrylic acid comprising introducing a preheated gas into catalyst beds so as to retain the relative humidity of the catalyst beds in the range of not more than 40% while elevating the temperature of the reactor, thereby starting up the reactor. By this method, deterioration of the catalyst during start-up step, which is relatively short period of time, is minimized.

In contrast, the object of the present invention is to provide a catalyst preserving method comprising maintaining a catalyst in a reactor under a condition of a water content of 30 mg or less per 1 g of catalyst dry weight. By this method, deterioration of the catalyst before start-up step, which is relatively longer period of time, is prevented. Merely adjusting the relative humidity of the catalyst beds, as in Uhara, is insufficient to prevent the deterioration of the catalyst before start-up step.

For all of the above reasons, it is clear that Uhara neither teaches nor suggests the present invention, which is directed to preventing deterioration of the catalyst for an extended period of time.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

Application No. 10/542,018
Response to Office Action dated May 29, 2007

Applicants believe that the present application is in condition allowance. Prompt and favorable consideration is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Jeffrey B. McIntyre
Registration No. 36,867

Customer Number

22850

Tel #: (703) 413-3000
Fax #: (703) 413-2220